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Fact Sheet on Perfluoroalkyl Substances (PFAS) for Gustavus Residents

What are PFAS?

- PFAS are human-made chemicals and emerging contaminants that are manufactured for their heat, water, and stain-resistant properties. These properties make PFAS beneficial for a wide variety of industrial, commercial, and residential applications, such as non-stick cookware, water-repellent clothing, stain-resistant fabrics, and firefighting foams.

How could I come into contact with PFAS?

- Most people have been exposed to low levels of PFAS from one or more sources. These may include drinking contaminated water, eating contaminated food, or exposure to PFAS-containing consumer products, such as waterproof clothing or rain gear.
- PFAS do not break down easily, and can be transported long distances in water and air, so they are widespread in the environment.
- Some types of aqueous firefighting foams (AFFF) contain PFAS because of their heat-resistant properties. Use of these firefighting foams is the source of PFAS contamination in Gustavus.

What levels of PFAS are considered unsafe?

- The U.S. Environmental Protection Agency (EPA) has issued a drinking water lifetime health advisory (LHA) of 70 parts per trillion (ppt) for two types of PFAS, called PFOS (perfluorooctanesulfonic acid) and PFOA (perfluorooctanoic acid). The EPA's LHA is intended to prevent adverse health effects associated with consuming water containing PFOS and PFOA over a lifetime, even for sensitive populations.
- The EPA LHA value was based on the available scientific evidence at the time regarding the potential health effects of PFAS. Historically, most research has been done on PFOS and PFOA. Recently, new scientific studies have become available that suggest other PFAS compounds (e.g., PFNA, PFHxS, and PFHpA) may also pose a health risk.
- Because of this new information, the Alaska Department of Environmental Conservation (DEC) issued more stringent guidelines on PFAS in groundwater in August, 2018. The new guidelines state that the sum of all five PFAS compounds of concern (i.e., PFOS, PFOA, PFNA, PFHxS, and PFHpA) must be below 70 ppt in drinking water, to ensure that human health is protected. The new DEC guidelines are available online: (http://dec.alaska.gov/spar/csp/guidance-forms).

How can PFAS affect my health?

- Research with animals has shown that exposure to certain types of PFAS can be toxic to several body systems. However, it is important to note that these studies typically use much higher exposure levels than humans commonly experience, and not all of these effects are expected to occur to the same degree in humans (due to differences in physiology between species).
- Scientists are still determining how long-term, low-level exposure to PFAS may impact human health. Studies of highly exposed communities show a probable link between exposure to certain types of PFAS and effects on:
    - Gastrointestinal System- Ulcerative colitis
    - Liver- liver damage, abnormal fat metabolism, high cholesterol
    - Kidney- kidney cancer and chronic kidney disease
    - Cardiovascular system- pregnancy-induced hypertension
    - Immune system- decreased response to vaccines
    - Reproductive system- testicular cancer and decreased fertility
    - Endocrine system- thyroid disease
    - Development- reduced birth weight

Are some populations more susceptible to PFAS?

- The US Agency for Toxic Substances and Disease Registry (ATSDR) considers developing embryos and children through age 18 to be more susceptible to PFAS exposure. This is because of additional sources of PFAS exposure during childhood that lead to higher exposure concentrations relative to their body weight. This can include hand to mouth transfer from contaminated items and transfer from exposed mothers to babies during pregnancy and breastfeeding.

Can I breastfeed my child if I have been drinking my well water?

- ATSDR and DHSS recommend that nursing mothers continue to breastfeed. The benefits of breastfeeding outweigh any known risk associated with transfer of PFAS through breast milk.

Can my family drink or cook with our well water?

- Do not drink your well water or use it to prepare baby formula if the sum concentration of the five PFAS of concern (i.e., PFOS, PFOA, PFNA, PFHxS, and PFHpA) is above the DEC action level of 70 parts per trillion (ppt). You should also find a clean water source for pets and other animals.
- You should not use your well water when cooking or washing food if the sum concentration of the five PFAS of concern is 70 ppt or more. Heating or boiling water doesn't remove PFAS.

Can I clean, wash dishes and wash clothes with my well water?

- If your well water is contaminated with PFAS, it is safe to use well water to clean your house, wash dishes, and do laundry.

Is it safe to brush my teeth and shower with my well water?

- If your well water is contaminated with PFAS, you can reduce exposure by using a clean or treated water source for brushing teeth or any other activity that might result in accidental ingestion of water, especially for young children who may swallow water during these activities.
- It is very unlikely that showering or bathing with contaminated well water will cause any health problems (unless large amounts of contaminated water are routinely being ingested while bathing). This is because PFAS is not easily absorbed by skin, and very little PFAS is inhaled while showering.

Is it safe to water my vegetable garden with my well water?

- Some studies show that plants absorb small amounts of PFAS through their roots, which can be distributed to other parts of the plant. The amount taken up depends on many different factors, including the level of PFAS in the water, the type of PFAS in the water, and the type of produce grown (vegetables absorb more than fruits). However, these studies also note that the health benefits typically outweigh the risks associated with PFAS exposure from fresh vegetables.
- Ultimately, your exposure to PFAS through vegetables is not likely to be significant compared to other exposure routes, such as drinking contaminated water. However, some people may feel more comfortable using an alternative water source (like rainwater) for their vegetable gardens.
- If you are concerned about the PFAS content of your soil, produce can be grown in raised beds with clean soil, or clean compost can be added to reduce PFAS uptake. Be sure to wash your vegetables with clean water, and consider peeling root vegetables.

How can I tell if I have come into contact with PFAS and how can I remove it from my body?

- PFAS can be measured in the blood; however, there are currently no state or federal health departments that recommend testing for individuals. This is because testing blood for PFAS is not a routine test and the results do not provide information about potential health effects. If you would still like to have a blood test, you should consult with your health care provider.
- There are no medical interventions that will remove PFAS from the body. The best intervention is to stop the source of exposure.

Where can I get more information?

- To learn more about testing for PFAS contact the Alaska DEC at 907-451-2153 or visit http://dec.alaska.gov/spar/csp/pfas-contaminants/
- To learn more about the site or the claims process contact the Alaska DOT at 907-465-4503 or visit http://www.dot.state.ak.us/faiiap/index.shtml
- To learn more about health effects of PFAS contact the Alaska EPHP at 907-269-8000 or visit http://dhss.alaska.gov/dph/Epi/eph/Pages/default.aspx. You can also visit the ATSDR PFAS website at https://www.atsdr.cdc.gov/pfc/index.html